

**REMARKS/ARGUMENTS**

Claims 1-104 stand canceled.

New claims 105-110 are supported by the specification disclosure and have been drafted in view of the Examiner's previous comments, and are believed to define allowable subject matter. Consideration of claims 105-110 in view of the following remarks is respectfully requested.

**CLAIM 105**

Claim 105 defines high performance filter media including nanofibers of diameter less 1  $\mu\text{m}$  incorporated and processed into internal structure of a filter medium dominantly composed of coarse fibers of diameter greater than 1  $\mu\text{m}$ , and requires that the filter media have distally opposite upstream and downstream faces normal to flow therethrough and defining a single layer filter media thickness therebetween. Claim 105 requires that the internal structure be between the noted faces and within the single layer. Claim 105 defines a trimodal distribution of fiber diameter, all within the single layer, including a first set of fibers in the diameter range 50 to 500 nm, a second set of fibers in the diameter range 1 to 5  $\mu\text{m}$ , and a third set of fibers in the diameter range 10 to 50  $\mu\text{m}$ . Claim 105 further requires that the first set of fibers is supported by the second set of fibers, and that the second set of fibers is supported by the third set of fibers. Claim 105 further requires that the first set of fibers provide the nanofibers, and that the second and third sets of fibers provide the coarse fibers. Support in the specification is found at page 19, lines 18-24.

Applicant notes the Examiner's comments in applying Till et al. U.S. Patent 3,073,735, namely in the Office Action mailed September 19, 2005, page 3, first paragraph, last sentence:

*The applied embodiments[of Till et al. '735] comprise fibers of all the instantly claimed diameters of the trimodal distribution, and as such anticipates the instantly claimed trimodal distribution.*

In response, it is respectfully noted that Till et al. '735 shows a fine fiber unit 6 for applying fine fibers (0.5 to 10  $\mu\text{m}$ , Col. 2, line 65), and a coarse fiber unit 3 for applying coarse fibers (10  $\mu\text{m}$  and greater, Col. 3, line 1). The fine fibers are deposited at area A, the coarse fibers at area B, and a mixture of coarse and fine fibers at area C. As shown in Fig. 2, strata A<sup>1</sup> includes the fine fibers, strata C<sup>1</sup> includes an intermingled mixture of coarse and fine fibers, and strata B<sup>1</sup> includes the coarse fibers. As noted at Col. 4, lines 16+, there are no well defined boundaries between the areas A and B so that there is a gradual transition and the average fiber diameter varies from small to large. As noted at Col. 2, lines 50+, the fiber forming units are separated by a partition 16, which partition may be omitted when it is not desired to confine the different fibers into well defined layers.

Claim 105 requires that the first set of fibers be supported by the second set of fibers, and that the second set of fibers be supported by the third set of fibers, and that the first set of fibers provide the noted nanofibers, and the second and third sets of fibers provide the noted coarse fibers. In contrast, Till et al. '735 does not disclose first, second and third sets of fibers, nor a first set of fibers supported by the second set of fibers in combination with the second set of fibers being supported by the third set of fibers, and in combination the first set of fibers providing the noted nanofibers, and the second and third sets of fibers providing the noted coarse fibers.

Applicant notes the Examiner's previous comments regarding Wilson et al. U.S. Patent 6,155,432, namely in the Office Action mailed September 19, 2005, top of page 4 and in the Office Action mailed June 22, 2006, bottom of page 2:

*The applied embodiments [of Wilson et al. '432] comprise fibers of all the instantly claimed diameters of the trimodal distribution, and as such anticipates the instantly claimed trimodal distribution.*

Applicant notes the "trimodal composition" referenced by Wilson et al. '432, Col. 10, line 53. Wilson et al. notes that such term refers to a mixture or blend having three different

diameters, namely 0.03 to about 0.06  $\mu\text{m}$  (Col. 10, line 67), 0.1 to about 0.3  $\mu\text{m}$  (Col. 10, line 63), and 5 to about 20  $\mu\text{m}$  (Col. 10, line 59). In contrast, it is firstly respectfully noted that such ranges do not satisfy the requirements of claim 105, particularly the defined second set of fibers in the diameter range 1 to 5  $\mu\text{m}$ . In Wilson et al. '432, the second set is in the range 0.1 to 0.3  $\mu\text{m}$  (Col. 10, line 63). Secondly, there is no disclosure nor teaching in Wilson et al. '432 that the first set of fibers is supported by the second set of fibers, and that the second set of fibers is supported by the third set of fibers. Yet further, Wilson et al. '432 does not satisfy the requirement in claim 105 that both the second and third sets of fibers provide the noted coarse fibers, which are defined in claim 105 as having a diameter greater than 1  $\mu\text{m}$ . In contrast, in Wilson et al. '432, only the third set of fibers provides coarse fibers having a diameter greater than 1  $\mu\text{m}$  (namely the third set of fibers having a diameter of 5 to 20  $\mu\text{m}$ , Col. 10, line 59). The second set of fibers in Wilson et al. '432 has a diameter less than 1  $\mu\text{m}$  (namely the second set of fibers in Wilson et al. '432 has a diameter of 0.1 to 0.3  $\mu\text{m}$ , Col. 10, line 63). Accordingly, the second set of fibers in Wilson et al. '432 are not coarse fibers as defined and required by claim 105.

It is respectfully submitted that none of the references, whether alone or in combination, teach the defined combination set forth in claim 105 including the requisite act of cognition and selection. The individual pieces of the puzzle were known in the prior art, but not combined until applicant's teaching thereof. It is respectfully submitted that the only suggestion for such combination comes from applicant's disclosure.

#### Combination

As noted by the Supreme Court in United States v. Adams, 383 US 39 at 50, 148 USPQ 479, at 483 (1966), a companion case to Graham v. John Deere Company, 383 US 1, 148 USPQ 459 (1966):

"It begs the question. . .to state merely that magnesium and cuprous chloride were individually known battery components. If such a

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combination is novel, the issue is whether bringing them together as taught [by the inventor] was obvious in the light of the prior art."

The act of selection is a supportable basis for invention, and is not precluded by apparent simplicity, Republic Industries, Inc. v. Schlage Lock Co., 592 F.2d 1963, 200 USPQ 769 (1979) quoting Judge Learned Hand, B.G. Corp. v. Walter Kidde and Co., 79 F.2d 20, 26 USPQ 288 (1935):

"It may be that in certain circumstances the very choice of the elements to be selected is not obvious.", Republic, page 778.

Simplicity of a combination makes the task even more difficult.

It is respectfully submitted that there is no showing, suggestion, or even hint of combining the references as proposed, nor to arrive at the claimed combination. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination, MPEP 2143.01. None of the references suggest the desirability of the proposed combination. It is respectfully submitted that there must be some motivation in the prior art itself for combining or attempting to combine the references, particularly in view of the significant advantages resulting from applicant's combination as noted above, and the resulting enablement afforded thereby.

Further, in direct rebuttal of the Examiner's position, applicant respectfully notes In re Lee, 61 USPQ (2nd) 1433, CAFC 2002, noting that the question of obviousness requires evidence relevant to the finding of whether there is a teaching, motivation, or suggestion to select and combine the references relied on as evidence of obviousness.

In re Kotzab, 55 USPC 2nd 1313, CAFC 2000, the Court commented on the need for avoiding the use of Applicant's teachings that may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against its teacher".

Combinability of References and Reasonable Teachings Thereof

The Examiner is respectfully requested to consider In re Dembiczak, 50 USPQ 2nd 1614 (1999), wherein the invention at issue was a large trash bag made of orange plastic and decorated with lines and facial features, allowing the bag, when filled with trash or leaves to resemble a Halloween-style pumpkin or jack-o-lantern, and which was rejected over a combination of the references showing traditional trash bags and decorated jack-o-lantern or pumpkin bags. The Court notes, page 1616, that an analysis under §103 begins with the phrase "at the time the invention was made" to guard against entry into the "tempting but forbidden zone of hindsight" and to avoid the temptation which may otherwise prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher". Further, the Court in Dembiczak, notes page 1617, that the "case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references". The Court further notes, page 1617, that "combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability – the essence of hindsight".

It is respectfully submitted that in the present case, there is no suggestion, teaching or motivation to combine the references as proposed. As noted by the Court in Dembiczak, page 1618, "yet this reference-by-reference, limitation-by-limitation analysis fails to demonstrate how the Holiday and Shapiro references teach or suggest their combination with the conventional trash or lawn bags to yield the claimed invention", so too in the present case, a reference-by-reference

and limitation-by-limitation analysis fails to demonstrate how the references teach or suggest their combination.

#### Act of Cognition and Selection

Is there a non-obvious act of cognition and selection required to arrive at the claimed invention. It is respectfully submitted that the answer is yes. The presence in the prior art of individual aspects, yet the non-recognition of applicant's solution is respectfully submitted as demonstrative evidence of non-obviousness. This non-recognition is particularly conspicuous in a crowded art, and is believed probative that applicant's solution involves a non-obvious act of cognition and selection required to arrive at such solution not previously recognized in the art.

The Examiner is respectfully requested and earnestly entreated to consider that combination in application does not preclude a finding of non-obviousness. Those in the art have not recognized nor been motivated to applicant's combination, notwithstanding the known use of individual aspects. It may deceptively seem apparent to now combine individual aspects as shown by applicant, but only with the aid of hindsight. There does not appear to be any suggestion of any such marriage or combination in the art to arrive at the present solution in the defined combination, nor does there appear to be a reference which bridges the gap to applicant's invention. The pieces of the puzzle were present and known, but never combined together until applicant's invention. It is surprising that such a desirable combination has apparently gone unrecognized in the art. The absence of such suggestion in a crowded art, and the non-recognition of the present solution, is believed probative of non-obviousness.

It is respectfully submitted that the cognition, selection and implementation in the present invention is novel and non-obvious and is not recognized in the prior art. The invention requires linking association involving a cognitive step not suggested previously in the art.

Applicant recognizes that it is a difficult if not impossible task to completely purge oneself of hindsight when attempting to place oneself in the shoes of the legal ghost called the

ordinarily skilled artisan. A combination makes the task even more difficult. As noted above by the Supreme Court *It begs the question. . .to state merely that magnesium and cuprous chloride were individually known battery components. If such a combination is novel, the issue is whether bringing them together as taught [by the inventor] was obvious in the light of the prior art.* The act of selection is a supportable basis for invention. As noted by Judge Learned Hand, *it may be that in certain circumstances the very choice of the elements to be selected is not obvious.*

### Doubt

The Examiner is further respectfully and earnestly entreated to consider that "doubt" as to patentability should be resolved in the applicant's favor. As noted in In Re Warner (1967) 54 CCPA 1628, 379 F.2d 1011, 154 USPQ 173, Cert denied 389 US 1057, rehearing denied 390 US 1000:

*The "doubt" in the above cases arose from and related to the absence of facts necessary to support the Patent Office's legal conclusion of obviousness under Section 103. We think the precise language of 35 U.S.C. 102 that "a person shall be entitled to a patent unless," concerning novelty and unobviousness, clearly places a burden of proof on the Patent Office which requires it to produce the factual basis for its rejection of an application under Sections 102 and 103, see Graham and Adams. Where such proof is lacking we see no necessity for resolving doubt in favor of the Patent Office's position, for example, where, as in the above cases, the factual basis to support the legal conclusion of obviousness under Section 103 is missing, and the record there supported the applicant's position that the invention was reconstructed through hindsight. Nowhere in these cases was there the necessary factual basis*

*to support the conclusion that it would have been obvious to one of ordinary skill to bring the elements together. United States v. Adams, supra.*

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*A rejection based on Section 103 clearly must rest on a factual basis, and these facts must be interpreted without hindsight reconstruction of the invention from the prior art. In making this evaluation, all facts must be considered. The Patent Office has the initial duty of supplying the factual basis for its rejection. It may not, because it may doubt that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in its factual basis. (emphasis added) To the extent the Patent Office rulings are so supported, there is no basis for resolving doubts against their correctness. Likewise, we may not resolve doubts in favor of the Patent Office determination where there are deficiencies in the record as to the necessary factual bases supporting its legal conclusion of obviousness.*

Consideration and allowance of claim 105 is respectfully requested. Claim 105 requires the defined internal structure between the noted faces and within the single layer, and defines a trimodal distribution of fiber diameter, all within the single layer, including a first set of fibers in the diameter range 50 to 500 nm, a second set of fibers in the diameter range 1 to 5  $\mu\text{m}$ , and a third set of fibers in the diameter range 10 to 50  $\mu\text{m}$ , and that the first set of fibers be



supported by the second set of fibers, and that the second set of fibers be supported by the third set of fibers, and that the first set of fibers provide the nanofibers, and that the second and third sets of fibers provide the coarse fibers. Till et al. '735 does not disclose first, second and third sets of fibers, nor a first set of fibers supported by the second set of fibers in combination with the second set of fibers being supported by the third set of fibers, and in combination with the first set of fibers providing the noted nanofibers, and the second and third sets of fibers providing the noted coarse fibers. Wilson et al. '432 refers to a mixture or blend having three different diameters, namely 0.03 to 0.06  $\mu\text{m}$ , 0.1 to 0.3  $\mu\text{m}$ , and 5 to 20  $\mu\text{m}$ . Such ranges do not satisfy the requirements of claim 105, particularly the defined second set of fibers in the diameter range 1 to 5  $\mu\text{m}$ . In Wilson et al. '432, the second set is in the range 0.1 to 0.3  $\mu\text{m}$  (Col. 10, line 63). Furthermore, there is no disclosure nor teaching in Wilson et al. '432 that the first set of fibers is supported by the second set of fibers, and that the second set of fibers is supported by the third set of fibers, nor does Wilson et al. '432 satisfy the defined claim requirement that both the second and third sets of fibers provide the noted coarse fibers (greater than 1  $\mu\text{m}$ ). In Wilson et al. '432, only the third set of fibers provides coarse fibers having a diameter greater than 1  $\mu\text{m}$ , whereas in Wilson et al. '432 the second set of fibers has a diameter less than 1  $\mu\text{m}$ . The second set of fibers in Wilson et al. '432 are not coarse fibers.

#### **CLAIM 106**

Claim 106 defines a structural combination, including the requirement that the defined internal structure be between the defined upstream and downstream faces and within the defined single layer, and further requiring that the internal structure capture droplets from a liquid to be filtered, and that the nanofibers are preferentially wetted by the droplets, and the coarse fibers are preferentially non-wetted by the droplets. Claim 106 further requires that the combination of the wetting and non-wetting nanofibers and coarse fibers, respectively, create a differential wettability gradient creating a capillary pressure gradient wicking droplets off the coarse fibers and facilitating coalescence within and drainage from the defined internal structure.

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Applicant notes the Examiner's previous comments and rejections over Till et al. '735, Wilson et al. '432, Fischer U.S. Patent 5,800,706, and Daulton USA <http://daultonusa.com/HTML%20pages/technology.htm>. Applicant also notes the Examiner's comments that he has not relied upon "common knowledge" (MPEP 2144.03), but rather upon inherency, noting MPEP 2112, particularly 2112 (III).

Addressing MPEP 2112, particularly 2112 (III), applicant firstly notes that claim 106 sets forth structural and functional requirements not met by the references, to be noted below, and applicant secondly sets forth the following showing rebutting inherency, whether or not the burden thereof has shifted to applicant.

Applicant notes MPEP 2112 (IV):

*The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. In re Rijckaert, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art); In re Oelrich, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'" "...In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics necessarily flows from the teachings of the applied prior art." ...The reference did not*

*directly state that the end product balloon was biaxially oriented. It did disclose that the balloon was "formed from a thin flexible inelastic, high tensile strength, biaxially oriented synthetic plastic material." Id. at 1462 (emphasis in original). The examiner argued that Schjeldahl's balloon was inherently biaxially oriented. The Board reversed on the basis that the examiner did not provide objective evidence or cogent technical reasoning to support the conclusion of inherency.).*

In the most recent rejection in the Office Action of June 22, 2006, the Examiner cites the noted Daulton reference. Applicant respectfully notes that designated wettabilities of carbon fibers are not inherent because of their changeability, and thus the requirement in MPEP 2112 that the "inherent characteristic necessarily flows from the teachings of the applied prior art" is not met. For example, carbon and activated carbon have different wettabilities. As a further example, the wettability of carbon fiber changes by exposing it to ozone, e.g. changing the contact angle from 90° to 0°. Likewise, the remaining references Till et al. '735, Wilson et al. '432, and Fischer '706 merely are representative "that a certain result or characteristic may occur or be present in the prior art" which "is not sufficient to establish the inherency of that result or characteristic".

Applicant respectfully submits that the act of cognition and selection required in claim 106, namely selecting and providing nanofibers preferentially wetted by the droplets in combination with selecting and providing coarse fibers preferentially non-wetted by the droplets is not reasonably taught in the references, and not inherent therein because the certain results or characteristic only may occur, and not necessarily flow from the teachings of the references. Instead, different wettabilities may occur in the references. Accordingly, it is respectfully submitted that "inherency" has been rebutted.

It is further respectfully submitted that there is no teaching nor suggestion in the references of the act of cognition and selection required to arrive at the combination set forth in claim 106.

Claim 106 further requires that the combination of the wetting and non-wetting nanofibers and coarse fibers, respectively, create a differential wettability gradient creating a capillary pressure gradient wicking droplets off the coarse fibers and facilitating coalescence within and drainage from the defined internal structure. This structural and functional combination is nowhere taught nor suggested in the references.

Applicant respectfully requests the Examiner's consideration of, and reiterates, the above noted comments regarding the claimed combination, combinability of references, act of cognition and selection, and resolution of doubt.

Consideration and allowance of claim 106 is respectfully requested.

#### **CLAIM 107**

Claim 107 defines a combination requiring the noted internal structure between the defined upstream and downstream faces and within the defined single layer, and requiring that the internal structure capture droplets from a liquid. Claim 107 further requires that the coarse fibers are preferentially wetted by the droplets, and the nanofibers are preferentially non-wetted by the droplets, and that the combination of the wetting and non-wetting coarse fibers and nanofibers, respectively, create a differential wettability gradient creating a capillary pressure gradient wicking droplets off the nanofibers and facilitating coalescence within and drainage from the defined internal structure.

Application of the above noted references and inherency is believed rebutted by the above noted showing.

Furthermore, claim 107 defines a structural and functional combination not present in nor taught by the references, and is believed allowable on such basis.

Applicant respectfully requests the Examiner's consideration of, and reiterates, the above noted comments regarding the claimed combination, combinability of references, act of cognition and selection, and resolution of doubt.

Consideration and allowance of claim 107 is respectfully requested.

**CLAIM 108**

Claim 108 sets forth a combination requiring that the defined internal structure be between the noted upstream and downstream faces and within the defined single layer, and requires in combination that the nanofibers and coarse fibers have different surface charge characteristics providing a localized electric field gradient within the internal structure enhancing particle removal from filtered fluid.

Applicant notes the Examiner's previous comments and rejections, including inherency. In rebuttal, it is respectfully noted that different surface charge characteristics providing a localized electric field gradient require an affirmative cognitive act of selection, and only may occur or be present in the prior art, not necessarily flowing therefrom, as required to satisfy the inherency requirements of MPEP 2112.

Applicant respectfully requests the Examiner's consideration of, and reiterates, the above noted comments regarding the claimed combination, combinability of references, act of cognition and selection, and resolution of doubt.

Consideration and allowance of claim 108 is respectfully requested.

**CLAIM 109**

Claim 109 sets forth a structural and functional combination requiring that the defined internal structure be between the noted upstream and downstream faces and within the requisite single layer, in combination with the requirement that the nanofibers are concentrated at one of the noted upstream and downstream faces and within the defined single layer, and further in combination with the requirement that the nanofibers have first portions extending parallel to one of the upstream and downstream faces, and have second portions extending normal to the noted one face. Claim 109 further requires that the internal structure include the first nanofiber portions at the noted one face and within the single layer and includes the second nanofiber portions continuous with the first nanofiber portions and extending into the internal structure normal to the noted one

face and increasing attachment strength to the coarse fibers and reducing de-lamination risk of the nanofibers and reducing pressure drop of fluid flow through the internal structure within the single layer due to increased orientation of nanofibers in the direction of flow normal to the noted one face.

Applicant notes the Examiner's previous rejections and comments regarding Fischer '706 and Kahlbaugh et al. U.S. Patent 6,521,321. In response, it is respectfully noted that Kahlbaugh et al. '321 is directed to multi-layer stacked arrangement with alternating separate fine and coarse layers. Accordingly, Kahlbaugh et al. does not meet the limitations of claim 109 requiring the defined internal structure (including nanofibers and coarse fibers) between the noted upstream and downstream faces and within the requisite single layer. Fischer '706 discloses a thin layer region having a higher concentration of nanotubes that may be formed on the top portion of the packed bed, Col. 9, line 40, and alternatively a thin layer of nanofibers that may be formed at the bottom portion or within the packed bed structure, Col. 9, line 42. Fischer '706 does not teach nor suggest the combination in claim 109 requiring the defined second nanofiber portions continuous with the first nanofiber portions and extending into the internal structure normal to the noted one face, and further in combination with the requirement that the second nanofiber portions increase attachment strength to the coarse fibers and reduce de-lamination risk of the nanofibers and yet further in combination with the requirement of reducing pressure drop of fluid flow through the noted internal structure within the single layer due to increased orientation of nanofibers in the direction of fluid flow normal to the noted one face. In Fischer '706, Col. 8, line 58, the noted "multiplicity of randomly oriented nanofibers, blended with scaffold particulates" does not teach the defined required second nanofiber portions of claim 109, nor are such second nanofiber portions inherent in Fischer '706. The defined requirements of claim 109 do not necessarily flow from such teaching of Fischer '706, and hence it is respectfully submitted that "inherency" has been rebutted. Furthermore, the only suggestion or teaching of the requirements of claim 109 come from applicant's disclosure, not from any of the references whether alone or in combination. The references do not teach or suggest the structure set forth in claim 109 including in combination the

requirement that the defined second nanofiber portions including the defined structural and functional combinational requirements set forth. It is respectfully submitted that rejection of claim 109 would require application of that which only the inventor taught to be used against its teacher.

Applicant respectfully requests the Examiner's consideration of, and reiterates, the above noted comments regarding the claimed combination, combinability of references, act of cognition and selection, and resolution of doubt.

Consideration and allowance of claim 109 is respectfully requested.

#### **CLAIM 110**

Claim 110 sets forth a combination requiring the defined internal structure between the noted upstream and downstream faces and within the requisite single layer, in combination with the requirement that the nanofibers are distributed unevenly in bundles providing pockets of nanofibers in a matrix of coarse fibers all within the requisite single layer. Claim 110 further requires that the pockets provide spatially distinct areas of greater filtration efficiency in the noted matrix of coarse fibers of lesser filtration efficiency, and in combination that the nanofibers are provided in low enough concentration that there is insubstantial difference in flow velocity, relative to media without nanofibers, through the noted internal structure until the nanofiber bundles begin to plug, whereupon flow is increasingly diverted through coarse fiber sections in the noted matrix between the pockets such that filtration efficiency is increased relative to media without nanofibers, at least initially until the nanofiber bundles begin to plug.

Applicant notes the Examiner's comments and rejections regarding the above noted references. Fischer '706 notes in one embodiment, Col. 9, line 31, that the distribution of scaffold particulates within the nanofiber packed bed is nonuniform, and at Col. 9, line 36, that the nanofibers may congregate and form web-like domains. In response, it is respectfully noted that "inherency" is believed rebutted because the defined combination in claim 110 does not necessarily flow from such teaching. Furthermore, it is respectfully submitted that there is no suggestion in the references, whether alone or in combination, of the structural and functional combination in claim

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110 affirmatively requiring pockets of nanofibers in a matrix of coarse fibers all within the requisite single layer and that the pockets provide spatially distinct areas of greater filtration efficiency in the matrix of coarse fibers of lesser filtration efficiency and the affirmative act of cognition and selection of providing the nanofibers in low enough concentration that there is insubstantial difference in flow velocity, relative to media without nanofibers, through the defined internal structure until the nanofiber bundles begin to plug, whereupon and in functional combination with the requirement that flow is increasingly diverted through the coarse fiber sections in the matrix between the pockets such that filtration efficiency is increased relative to media without nanofibers, at least initially until the nanofiber bundles begin to plug. The only teaching or suggestion of such structural and functional combination is that found in applicant's disclosure.

Applicant respectfully requests the Examiner's consideration of, and reiterates, the above noted comments regarding the claimed combination, combinability of references, act of cognition and selection, and resolution of doubt.

Consideration and allowance of claim 110 is respectfully requested.

It is believed that this application is in condition for allowance with claims 105-110, and such action is earnestly solicited.

Respectfully submitted,

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